The Northwestern MILLER

MILLING PRODUCTION SECTION

AOM Meeting Charts Technical Progress

Open Forum Questions Demonstrate Millers' Interest in Pneumatics

Questions submitted over the three days of technical sessions during the annual meeting of the Association of Operative Millers, held in Chicago May 14-17, were used as the basis for the open forum discussion led by J. George Kehr, Russell-Miller Milling Co., Buffalo, N. Y.

Questions submitted in writing and accumulated over the three-day period were sorted into categories according to the expert at whom they were directed.

The first group of questions concerned the Universal Moisture Tester and was directed at Prof. E. P. Farrell, Kansas State College. Discussion brought out the fact that the moisture tester is relatively free from variations due to changes in analysis but that for each individual material tested there must be a calibration by adjustment of the thickness of the sample. This is accomplished by changing the pressure on the sample in the testing machine.

Air-Handling Discussions

The second group of questions was directed at pneumatic conveying. J. F. Lockwood, managing director, Henry Simon, Ltd., Stockport, Eng., replied to the majority of the questions concerning pneumatic conveying. The majority of these questions were directed at the question of air velocities and ratios of stock to air as used by Henry Simon in their new air lift.

Mr. Lockwood pointed out that it is their practice to use an air velocity approximately twice the terminal velocity of the material being elevated, with loadings varying from two to six pounds of stock per pound of air. At these low velocities, static pressure losses are relatively low, resulting in a great saving in power over the conventional pneumatic conveying systems.

Roll Pressure Relationship

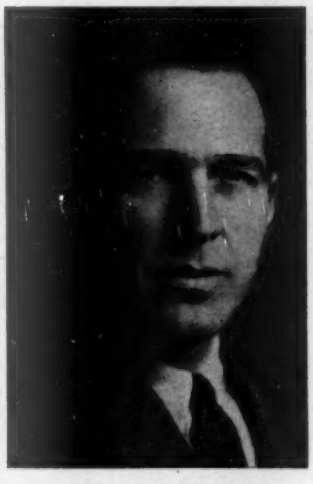
The question was asked regarding the chain effect on flour quality of increases in roll pressure. This question was directed at Prof. Farrell. He replied that the results of the study conducted by Dr. J. A. Shellenberger and Prof. A. B. Ward at the department of milling industry, Kansas State College, indicated that increases in roll pressure resulted in increased absorption as well as other changes in the quality of the flour, principally gassing power.

Chairman Kehr called on J. F. Lockwood for his comments regarding this subject and Mr. Lockwood stated that there very definitely was a relationship between grinding pressure and the gassing power of the flour produced. He pointed out a very interesting fact that they had observed in new mills that the gassing power of flour coming from the new mill was considerably lower than from that of an older mill in the same vicinity grinding the same wheat. Mr. Lockwood said that in their experience with mill building they had observed that apparently a certain amount of damaged starch cells are desirable, and that although malt can be added to control the gassing power, it can also be increased by roughened roll surface, the use of finer covers on the four silk to scalp a certain amount of the flour over into the succeeding reductions for repeated regrinding and, finally, overgrinding or grinding with excessively high pressures.

Roll Feeder Location

One question submitted to the group covered the controversial question of onto which roll should the stock fall from the feeder. It was developed that most designs of roll stands allow the feed to fall either on the outside of the inside roll, with the result that on the one side

(Continued on page 4a)



Henry S. Crosby

Mill Manager, Engineer Tell Operatives of Experience with Pneumatic Systems

Projection slides of pictures taken in a number of boxcars which originally were used to persuade railroad executives that something must be done about boxcar sanitation formed the basis of a presentation by Paul McSpadden, Commander-Larabee Milling Co., at the annual meeting of the Association of Operative Millers.

Discussions of the advantages of pneumatic conveying systems in flour mills, presented by a mill manager and by a milling engineer, were featured on the May 16 program of the 55th annual meeting of the Association of Operative Millers, held at Hotel Sherman, Chicago, May 14-17.

R. J. Pinchin, president of the Copeland Flour Mills, Ltd., Midland, Ont., presented an address entitled "The Pneumatic System, a Challenge to Flour Milling Management." Mr. Pinchin's remarks were limited principally to a discussion of the impact of the pneumatic system on the thinking of flour mill management, and in preface to his statements on the impact of the system and how it may be related to capital expenditures, Mr. Pinchin said that it was generally agreed that there were at least 10 principal advantages to be gained by the installation of such a system. Among those he listed were the fact that the cost of installing a pneumatic mill is "definitely less than the conventional bucket elevator mill." Other advantages pointed out included less space for the pneumatic system, reduction of power requirements, better control of the moisture content of the stocks, reduction in insect infestation, and finally an improvement in the color and natural aging of the flour since it is thoroughly aereated.

"I believe our respective views will be formulated if each one of us will compare our present plants to the modern flour milling plants currently being placed in production. By such a comparison, I believe, we are more likely to view the pneumatic system as a means to an end, rather than as an end in itself. This is important," Mr. Pinchin said.

Regarding management's attitude toward installation of new equipment, Mr. Pinchin said that "instead of feeling satisfied with ourselves, it is about time that top management in the milling industry turned the searchlight on why this great industry of ours admittedly is without sufficient capital to pursue an adequate and sound program of rehabilitation."

He said that most of us know what should be done, but instead of taking aggressive, constructive action as individual companies, "we seem to wait for the millennium, or the other fellow to reform first." He made the observation that treating the individual symptoms will never cure "cancerous" growths within our industry.

Concluding his address about pneumatic systems, Mr. Pinchin said that it is his personal opinion that flour mill management on the North American continent is now "at the crossroads." As an industry, collectively and individually, he said, "we must now make the decision to continue to carry on with our old plants or embark upon a long range program of rehabilitation."

It was his belief that the pneumatic system constitutes a challenge to flour mill management and he feels sure that management will meet that challenge in its stride.

The subject of pneumatic conveying from the viewpoint of the flour mill engineer was presented by Henry S. Crosby, vice president in charge of plant engineering for General Mills, Inc., Minneapolis.

Mr. Crosby said that he would like

(Continued on page 8a)

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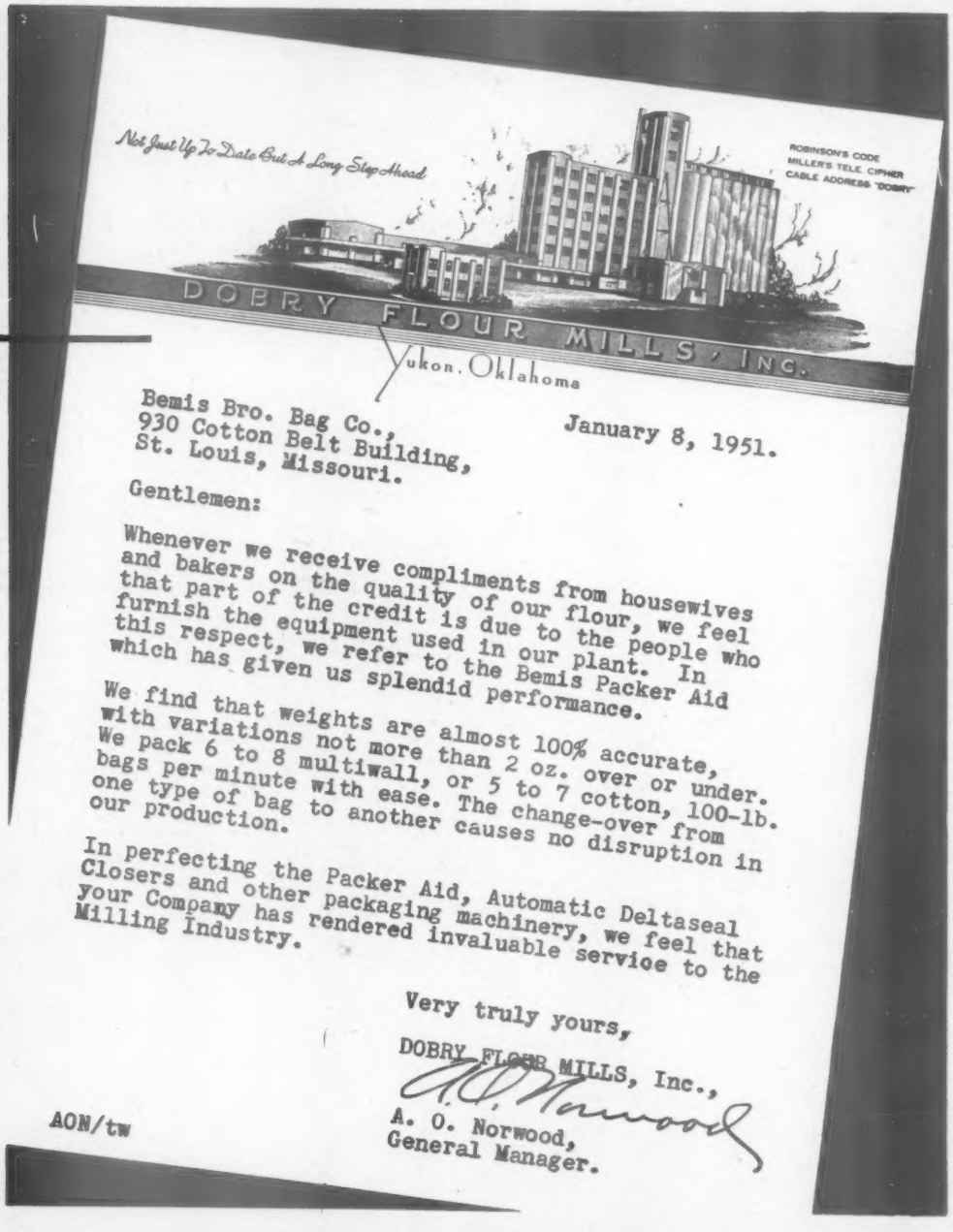
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A Picture Report of Highlights of the AOM Convention, May 14-17

The attentive listeners at one of the sessions are, from left to right, C. A. Bethke, Schultz, Baujan & Co., Beardstown, Ill.; C. H. Morrison, J. F. Imbs Milling Co., Belleville, Ill.; C. L. Batman, McKenzie Milling Co., Quincy, Mich., and C. D. Smith, Knappen Milling Co., Augusta, Mich. The men in the picture in the center are L. E. Collier, National Biscuit Co., Toledo, Ohio, and Rogers C. B. Morton, Ballard & Ballard Co., Inc., Louisville, Ky. In the picture on the right are R. B. Dodds, manager of the Entoleter Division of the Safety Car Heating & Lighting Co., Inc., New Haven, Conn.; Alden A. Ackels, General Mills, Inc., San Francisco, and J. F. Lockwood, Henry Simon, Ltd., Stockport, England.

Included in the picture on the left are three veterans of the Association of Operative Millers. From left to right: George S. O. Smith, Flour Mills of America, Inc., Kansas City, treasurer of the association; P. H. Lawson, formerly general superintendent of the Flour Mills of America organization and now living in Texas, and J. L. Chamberlain, Maple Leaf Milling Co., Ltd., Toronto, Ont. The men in the center picture are, in the usual order, J. E. Anderson, research engineer of the Igleheart Bros. Division of General Foods, Inc.; Ben D. Blackburn, Fant Milling Co., Sherman, Texas, and Prof. E. P. Farrell, milling industry department, Kansas State College, Manhattan, Kansas. The picture on the right is of Richard C. Schultz of Schultz, Baujan & Co., Beardstown, Ill.; Howard L. Sanderson, St. Louis Mill Equipment Co., and Walter Wichser, also of the Schultz, Baujan firm.

Four AOM executive committee members are pictured on the left. From left to right, they are: H. R. Klink, Roanoke City Mills, Inc., Roanoke, Va.; Oscar Nelson, King Milling Co., Lowell, Mich.; H. O. Olsby, Russell-Miller Milling Co., Alton, Ill., and George S. O. Smith, Flour Mills of America, Inc., Kansas City. The center picture, taken at the AOM banquet, includes: Mrs. W. F. Keller, Sterwin Chemicals, Inc.; George B. Wagner, Pillsbury Mills, Inc., Minneapolis; Mrs. R. C. Bradford, Pillsbury Mills, Inc., Minneapolis, and Mr. Keller. The ladies in the picture on the right are, in the usual order: Mrs. Donald S. Eber, Mrs. Oscar Nelson, Mrs. H. O. Olsby, Mrs. George S. O. Smith and Mrs. C. R. Veeck.

A portion of the head table at the annual AOM banquet is shown in the picture on the left. The group in the center picture is made up largely of District 4 members of the AOM, along with Mrs. George L. Smutny of Milwaukee, who wanted to have her picture taken. The men seated are: Clare E. Malone, General Mills, Inc., Kansas City; Stanley M. Orr, General Mills, Inc., Minneapolis; Ray Wentzel, Doughboy Industries, Inc., New Richmond, Wis., and C. A. Scott, Merck & Co., Minneapolis. Standing: Mrs. Smutny; E. G. Bayfield, Standard Milling Co., Chicago; Lloyd M. Steirly, S. R. Sikes Co., Minneapolis; Arch Axell, Standard Milling Co., Minneapolis; Walter Arnold, Hubbard Milling Co., Mankato, Minn.; A. S. Roper, Bemis Bro. Bag Co., Minneapolis, and O. F. Wilke, King Midas Flour Mills, Hastings, Minn. The shot on the right shows a group of millers.

NEW AOM OFFICERS—Officers of the Association of Operative Millers, to serve during the coming year, are shown in the picture above. From left to right are Donald S. Eber, reappointed executive secretary; C. R. Veeck, Eagle Roller Mill Co., New Ulm, Minn., president; J. George Kehr, Russell-Miller Milling Co., Buffalo, vice president, and George S. O. Smith, Flour Mills of America, Inc., Kansas City, reelected treasurer. The officers were chosen at the organization's annual meeting held at Hotel Sherman, Chicago, May 14-18.

Open Forum Questions

(Continued from page 1a)

of the stand the stock falls on a slow roll and on the other side of the stand the stock falls on the fast roll. The questioner was asking whether or not it was possible to avoid this in mill design. Chairman Kehr directed this question to H. S. Gilbert of Allis-Chalmers, who stated that in his company's newest design, the feeders are designed so that the stock falls on the two outside rolls which are both slow rolls.

More Questions About Pneumatics

The questioning again came back to the subject of pneumatic conveying with a series of questions directed to Henry S. Crosby, vice president in charge of engineering, General Mills, Inc. Mr. Crosby was not in the room, however, so Chairman Kehr called on Alden Ackels, General Mills, Inc., for the answer to the first question, which was, "Is there separation of stocks in pneumatic conveying?" Mr. Ackels' reply was that there was a certain amount of it, but that the separations were recombined and thoroughly mixed before entering the flour sack.

The second question in this group concerned whether or not grinding by attrition or impact in pneumatic mills caused noticeable changes in the product. Mr. Ackels replied that this had not been noticeable as compared to the conventional mill.

The third question about pneumatic conveying concerned the control of humidity and was stated as, "Is it necessary to have 50% or higher relative humidity to get good results with pneumatic conveying?" Mr. Ackels' reply was that it was most important to have a uniform level of relative humidity than that any particular level be established. Chairman Kehr asked for further comment from Mr. Lockwood regarding these questions. He answered the question by stating that it was true that there was some separation but that the stock was remixed by the time the flour reached rebolt, secondly that some grinding due to attrition may be desirable in the final product, and third, that while he would prefer to specify a mill temperature of 73° F. and a relative humidity of 60%, that the maintenance of a constant relative humidity was by far the most important factor.

The final question in the open forum was directed at Mr. Lockwood and was stated "Is it possible to build a one-story mill by using pneumatic conveying?" Mr. Lockwood replied that if it meant one story without a basement, then as far as the Simon system was concerned, it was not possible. However, if a basement was included in the one story plant then it would be possible to use an air lift and the problem was one of providing adequate head room for spouting from the roll stands to the diffusers. While he preferred to specify 45° spouting angles to the diffusers, they had been able to use angles as flat as 20° with considerable success.

—BREAD IS THE STAFF OF LIFE—

HOSKINS FIRM MOVES

CHICAGO—The Glenn G. Hoskins Co., industrial engineering service and sales firm, has moved its offices to 125 E. Church St., Libertyville, Ill. The move was made to permit larger facilities and more efficient service. The firm's new telephone number is Libertyville 2-1031.

RESEARCHERS—Prof. J. M. MacKenzie, flour mill engineering division, University of Minnesota, was appointed chairman of the research committee of the Association of Operative Millers, during the organization's annual meeting held in Chicago May 14-17. The committee is shown in the above picture and includes the following: Seated, from left to right: R. R. Brotherton, Bay State Milling Co., Winona, Minn.; J. I. Chamberlain, Maple Leaf Milling Co., Ltd., Toronto, Ont.; George J. Tesarek, Quaker Oats Co., St. Joseph, Mo., and T. A. Rozsa, Pillsbury Mills, Inc., Minneapolis. Standing, from left to right: George M. Kautz, Lauhoff Grain Co., Danville, Ill.; R. C. Bradford, Pillsbury Mills, Inc., Minneapolis; Mr. MacKenzie; Frederick M. Atkinson, Atkinson Milling Co., Minneapolis, and Donald W. Pollei, Eagle Roller Mill Co., New Ulm, Minn.

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Experience with Pneumatics

(Continued from page 1a)

to reiterate two points made by Mr. Pinchin: (1) pneumatic milling should be regarded as a means to an end rather than an end in itself and (2) that he too believed that the flour milling industry in the U.S., as well as in Canada, must adopt a realistic approach about the cost angle and a stated or fixed depreciation on its machinery.

Mr. Crosby said that he was often reminded of the standard criticism in milling technology to the effect that "there is nothing new in milling." He was reminded, he said, of a watermill that he saw in or near Athens, Greece. The mill was built in 50 B.C. The second mill in that country, he said, that impressed him was a mill that was built about 1850 or approximately 100 years ago.

There was a striking similarity in the two mills, Mr. Crosby said, and he agreed that between 50 B.C. and 1850, in Greece at least there was "nothing new in milling."

Need for Modernization

"But what of progress during the past 30 years?" the speaker asked. He said that the great bulk of milling capacity in the U.S. had been built prior to 1920. Developments in milling technology since 1920 through 1940, he admitted, had been in the "doldrums."

Mr. Crosby said the development of pneumatic transported mill stocks is one of the new developments, stating that the idea of handling mill stocks pneumatically wasn't exactly a new idea, but that a new feature is the application to a multitude of small in-process streams in a flour mill.

Mr. Crosby reviewed the experiences that his company has had in its first attempt to build a pneumatic mill. The 4,300-sack plant at Los Angeles was built "from scratch." It was his company's first installation, and he readily admitted that several mistakes in engineering and design had been made, but those have since been rectified.

Newness alone cannot justify the installation of a pneumatic handling system, the engineer asserted. He cited as the four principal advantages of a pneumatic mill as compared with the conventional elevator bucket type the following points: (1) Sanitation. (2) Mechanical simplicity. (3) Flexibility. (4) Intangibles of quality, including quality of product, stability and uniformity.

With reference to the advantages of "flexibility," Mr. Crosby said that this flexibility included the possibility or ability to make new layouts in plants and to design new machines expressly for use in pneumatic systems.

Crosby Lists Disadvantages

Among the disadvantages listed by Mr. Crosby with regard to pneumatic conveying were the following:

(1) He said that the power requirements of a pneumatic mill tend to be higher than for the conventional system. He emphasized the word "tend" and said that since his company had installed the pneumatic mill at Los Angeles it was possible to reduce the power requirements by better than one half. (2) The second disadvantage was the effect of pneumatic conveying on the moisture content of the product being handled. (3) The third point, he cited, was that it "tends to be more expensive."

Mr. Crosby recommended to millers who are considering installation of pneumatic conveying systems that first they obtain the services of engineers who have had experience in handling commodities pneumatically, and second, that that engineering knowledge be supplemented by an exact knowledge of the mill streams to be handled, that is, the volume of the stream as well as its physical characteristics regarding granulation, etc.

He made several recommendations based on their experience regarding minor engineering problems and compared the cost of a bucket system with a pneumatic system.

Basing his estimate on a 2,300-sack capacity mill, he said that the conventional system would require 6,400 ft. of spouting, 3,100 feet of elevator legs, and 500 ft. of screw conveyor equipment. He estimated the total cost of that conventional equipment $81,000, and said that a pneumatic transport system, he believed, could be installed for a figure comparable or close to that.

Evaluation of Pneumatic System

In summarizing his discussion, Mr. Crosby said that he was acquainted

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EXECUTIVE COMMITTEE—The executive committee of the Association of Operative Millers, with officers of the organization, is shown in the above picture, taken during the AOM annual meeting in Chicago May 14-18. From left to right, seated: Oscar Nelson, King Milling Co., Lowell, Mich.; W. I. Golladay, White Star Mills, Staunton, Va.; C. R. Veeck, Eagle Roller Mill Co., New Ulm, Minn., president of the AOM; L. E. Collier, National Biscuit Co., Toledo, retiring president; Paul F. Olson, Pillsbury Mills, Inc., Minneapolis. Standing: Harry Taylor, Rodney Milling Co., Kansas City, Mo.; Harold O. Olsby, Russell-Miller Milling Co., Alton, Ill.; Donald S. Eber, executive secretary, Kansas City; J. George Kehr, Russell-Miller Milling Co., Buffalo, vice president, and George S. O. Smith, Flour Mills of America, Inc., Kansas City, treasurer.

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with an old miller once who had what was termed as the "acid test" of the value of any new device. That test consisted of the answer to three questions: (1) Will it make better flour? (2) Will it make more flour of equal quality? (3) Will it make more flour of equal quality at a lower unit cost?

Mr. Crosby said to those three questions he would add two more: (4) Will it contribute to sanitation? (5) Will it make for better jobs?

It was his opinion that the installation of pneumatic transport system in a mill "comes through with flying colors on all questions in improved mill performance."

——BREAD IS THE STAFF OF LIFE——

O. J. Zimmerman Joins "Order of Has-Beens"

O. J. Zimmerman, assistant director of manufacture, General Mills, Inc., Minneapolis, and a past president of the Association of Operative Millers, was presented with a past-president's pin by the association.

The presentation ceremony took place at the opening session of the AOM convention May 17. Elmer A. Whiteman, formerly general superintendent for G.M.I., presented the pin on behalf of the association. Mr. Whiteman welcomed Mr. Zimmerman into the "Order of Has-Beens," but warned him that "young men like you cannot retire."

Mr. Zimmerman, in a short response, assured the membership that he would continue his active association with the organization and thanked the millers for making it possible for him to have received the past president's badge.

——BREAD IS THE STAFF OF LIFE——

Frenchman Discusses Silk Bolting Cloth

A discussion of the production and utilization of silk bolting cloth was presented at the operative millers' convention May 17 by Andre Renaud, president of the French cloth manufacturing firm of Tripette, Renaud & Fils, Paris, France. Mr. Renaud's address was the only formal address presented on the session and it preceded the special open forum discussion.

Mr. Renaud said that silk had been used to make bolting cloth for use in flour mills for about 150 years. He said that silk has proved its superiority for bolting flour because of its physical characteristics which he listed as resistance to wear, ability to be stretched tightly and its hygroscopic nature.

In producing silk bolting cloth, Mr. Renaud said, a gauze twist is used because it keeps the silk threads in position and the meshes retain their original opening sizes.

Mr. Renaud said that some French millers had tried to substitute wire cloth for silk in practically all uses in their mills, but had returned to the silk cloth because of the fact that the wire cloth was unsatisfactory in several instances.

Nylon bolting cloth, he said, has not been found applicable to use in flour mills because of its inability to absorb moisture, because of its elasticity or tendency to stretch under loads and more importantly, because the fibers slip on each other too easily and the mesh sizes change.

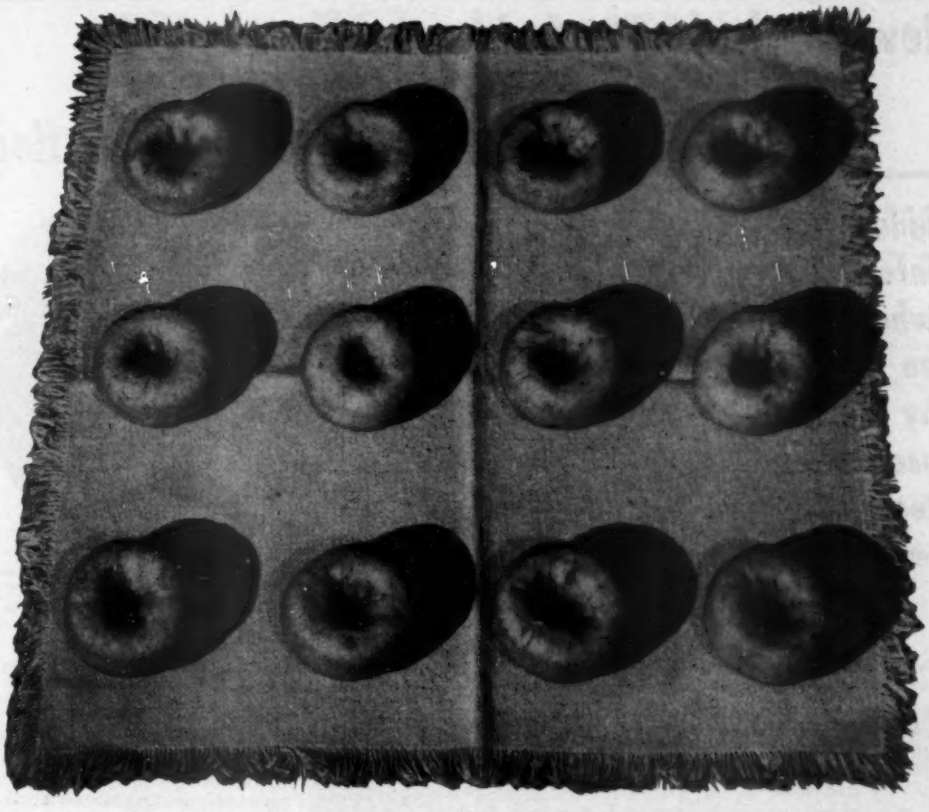
Mr. Renaud's address was concluded with a discussion of the wear resistance quality of silk and he offered a few suggestions to the millers regarding proper ways to install and maintain silk cloths for maximum wear.

Milling Technology Symposium Feature of Chemists' Program

A session devoted to milling technology was one of the features of the 36th annual meeting of the American Association of Cereal Chemistry, held in Minneapolis May 21-25. The chairman for the symposium was John M. MacKenzie, assistant professor, University of Minnesota, and staff member in charge of the milling engineering curriculum.

The symposium was designed to cover four major phases of the research now being conducted in the field of milling technology: These phases are: the physical and biochemical characteristics of wheat and wheat endosperm, mechanical factors in the milling process, physical characteristics of the products of milling, and the evaluation of milling characteristics.

Three papers were presented in the first area of research. The first of these papers was a study of bran thickness and its relation to millability of some Pacific Northwest wheats. The study was carried on at the Northern Regional Research Laboratory, Peoria, Ill., by R. A. Larkin, M. M. MacMasters, M. J. Wolf and C. E. Rist. The paper presented by R. A. Larkin concludes, after exhaustive studies of the wheat varieties involved, that difference in the thickness of the various bran layers does not correlate with the general milling behavior of the wheat varieties under consideration. The frequency distribution of aleurone layer meas-



SEE THE DIFFERENCE controlled dough rate of reaction makes. Upper Row — Fast, uncontrolled dough rate of reaction. Middle Row — Controlled dough rate of reaction with Monsanto Sodium Acid Pyrophosphate, MD grade, tailored for machine-made, cake doughnuts. Bottom — Usual type of slow dough rate of reaction with sodium acid pyrophosphate.

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urement as well as the differences in thickness of individual cells were also considered in relation to milling characteristics and again no significant correlation was observed.

The second paper in this area was a part of the same over-all study concerning these same Pacific Northwest wheats, but was carried on as a joint study by the Western Regional Research Laboratory at Albany, Cal., and the Western Wheat Quality Laboratory at Pullman, Wash. D. K. Mecham of the Western Regional Research Laboratory collaborated with E. F. Seeborg and M. A. Barmore of the Western Wheat Quality Laboratory. The paper presented by D. K. Mecham concerned the influence of crude fat content on wheat milling characteristics and concludes that in Rex, a poor milling variety of wheat studied, the crude fat-crude fiber ratio was nearly always above 1.0. To try to establish this relationship, various samples of what were extracted with petroleum ether and the milling results noted on samples of the wheat before and after extraction. There was a distinct improvement in flour yield after extraction of the crude fat by means of the petroleum ether. The authors further proposed a scoring system for milling characteristics based upon the economic importance to the miller of flour yield, ash and moisture content.

The third paper presented in this area was a study of the crushing characteristics of endosperm particles and was presented by K. T. Whitby, mechanical engineering department, University of Minnesota, in conjunction with the milling engineering curriculum. Two phases of study were reported, the first being the visual observation under the microscope of changes in the appearance of endosperm particles as crushing loads were applied to endosperm confined between two optical flats. The second phase of the study included a study of the stress-strain relationship as crushing loads were applied combined with photomicrographic studies of the appearance of the particles before and after crushing. Apparatus and techniques were described for separating milogram amounts of particles within a particular size range and for the observation of the particles during crushing and measurement of particle distortion under load.

The second phase of the program dealing with the mechanics of milling, was covered by a single paper reporting a study by Dr. J. A. Shellenberger, head, department of milling industry, Kansas State College, Manhattan, Kansas, and Prof. Arlin B. Ward, department staff member. The study was concerned with grinding with controlled roll pressures and was presented by Prof. Ward. A very thorough and carefully prepared study on the effect of different roll pressures on the grinding of third middlings stock from hard red winter wheat was presented. Using a range of roll pressures from 50 to 400 lb., it was found that the fineness of the flour increased with increasing pressure. The optimum amount of flour was produced when the roll pressures were approximately 250 lb. Increases in gassing power and absorption were observed in the flour produced by increasing roll pressures. Both ash and protein of the flour decreased as the roll pressure increased, but the power requirements increased directly with the roll pressure. No significant differences in baking test and valorimeter determination were observed in the flours produced under various roll pressures.

The third phase of the program involving the physical characteristics of the wheat products included two papers, the first being "Factors Affecting the Color of Macaroni. IV. Semolina Particle Size." This study made under the direction of Dr. J. A. Anderson, head, Grain Research Laboratory, Board of Grain Commissioners, Winnipeg, Man., and Dr. G. N. Irvine who presented the paper. Data were presented showing that the color of semolina products has a definite relationship to the particle size of the semolina used in preparing the product.

Two series of studies were run, the first of which included studies made on sample of durum wheat experimentally milled to obtain a wide range of particle sizes, and the second series was run on a semolina obtained by fractionating commercial semolina on a Ro-Tap sifter. A third series was obtained by reducing and

New Methods Cut Incidence of INSECT FRAGMENTS in flour

hidden infestation in wheat can now be REDUCED by practical, use-proven techniques

Looks like insect-free, high quality wheat? But see what the X-ray picture at the right shows! This new test was recently described in the May issue of *Farm Journal* magazine as a vitally important new aid to grain buyers — a practical way to detect hidden infestation that will show up later as insect fragments in flour.

The same sample of wheat under the X-ray test. Note the dark areas or cavities eaten away by weevils. The weevils themselves look like small white grubs. Use of Pyrenone Wheat Protectant by the farmer and wheat handler can prevent this costly hidden infestation.

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MILLERS ENJOY PARTY BY ALLIED TRADES ASSN.

CHICAGO—Members of the Allied Trades Assn. received many well-deserved compliments on the excellence of the annual party which is staged in connection with the annual meetings of the operative millers' association. E. C. Badenoch, Chicago representative, S. Howes & Co., Inc., Silver Creek, N.Y., was chairman of the committee which staged the party, or as the committee called it, the "Smoke-Eaters Jamboree."

Each guest at the party was supplied with a papier mache fireman's hat to wear. A floor show by professional entertainers took up most of the evening, since a very receptive audience brought each act back for several encores.

The party closed about midnight with a buffet supper.

again fractionating a homogenous portion of the commercial semolina retained on a 60 mesh and passed through a 40 mesh sieve. In general, enzymic destruction of pigment increased with decreasing particle size. Macaroni color, on the other hand, passed through a marked optimum with the first two series, the optimum fraction being that which passed through a 40 mesh and was held on a 60 mesh. The principal degrading factors for the finer sized fractions were a lower yellow color and dullness which appears to be partly a function of particle size alone and partly due to an increasing brownness.

The second paper in this group was presented by Dr. R. M. Sandstedt on a study prepared under his direction in collaboration with Don Carter, College of Agriculture, University of Nebraska, Lincoln. This paper was concerned with photomicrographic studies of wheat starch as observed in the structure of flour particles affected by different degrees of kernel hardness and tempering.

Dr. Sandstedt opened this very provocative study by showing photomicrographs of two samples of flour both milled from durum wheat, but one with a relatively low moisture content of 16% and the second with a high moisture content of 25% followed by drying to normal flour moisture. The flour milled from the high moisture wheat showed all the physical characteristics of a soft wheat flour. Dr. Sandstedt then showed photomicrographs of the individual flour particles for both hard wheat flour and soft wheat flour as compared with the durum flour milled from the high moisture wheat.

The differences between the soft and hard wheat flours appear to be principally in the release of the starch granules by the protein or gluten structure under the crushing action of the rolls. Hard wheats or wheats tempered at relatively low moisture levels so that the gluten remains hard and tough, showed high percentage of starch granule damage. This was demonstrated by showing photomicrographs of the starch granules and flour particles under polarized light. Flours milled from soft wheat or from wheats tempered at high moisture levels, however, showed relatively little starch damage although there was a considerable release of the starch granules from the endosperm cell structure.

Both the papers presented by Mr. Whitby and Dr. Sandstedt seemed to provoke the greatest amount of discussion as to the exact nature of the mechanism of grinding by which these effects are produced. Principal differences of opinion seemed to center on the way in which the starch granules are actually damaged and what constitutes starch granule damage.

The final phase of the symposium consisted of two papers on methods of evaluating the milling qualities of various wheat varieties. The first of these papers concerned a commercial evaluation of new wheat varieties as prepared by Dr. J. A. Shellenberger of the department of milling industry, Kansas State College, Manhattan. Prof. E. P. Farrell, and Prof. J. A. Johnson all of the department of milling industry staff. A paper was presented by Mr. Johnson and outlined a unified program for the commercial testing of new wheat varieties. Milling characteristics of wheat varieties are judged by experienced, practicing operative millers as observed during the operation of the 150-sack mill in the department of milling industry at the college. The flour produced is laboratory tested by chemical and physical methods and baked in a small commercial

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This Was Milling

IN THE DAYS OF POMPEII

AWAY BACK IN THE YEAR 200 B.C. the Romans invented this large, *improved* grinding mill. History relates that this was the first step in the transition of flour milling from private family production to expanded production for the community market. Until then, each family ground its own grain for flour whenever the need arose.

Slaves and serfs were used for power propulsion. Later on, animal power was used for this tedious, difficult work. It is interesting to note that the grindstones used in these Pompeian mills were shaped of lava from Vesuvius. Sieves — both coarse and fine — were made of horsehair and linen, to separate the flour from the bran. Pompeian milling was slow, hard work — and far from sanitary.

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bakery also available at the department. Samples of the same flour are analyzed and baked by collaborating cereal chemists in the milling and baking field.

Such a combination of milling and baking studies yields to conclusions having great influence in determining the acceptance of a new wheat variety and it is hoped that the use of the small commercial mill combined with the judgment of experienced practical millers will assist in preventing the release of wheats having undesirable milling quality.

The second paper in this group was presented by Dr. Rae H. Harris, North Dakota Agricultural Experiment Station, Fargo, N.D., and it concerned a series of studies on the uniformity of results obtained from a set procedure of Buhler milling. Eight Buhler mill operators were requested to mill a common sample of wheat by a specified method in which a number of milling details are controlled.

Great variability was found among the seven mills whose results were accepted for comparison with such a wide variability in yields of straight grade flour, bran and shorts, that the results of the study were entirely inclusive. Apparently present progress in this area does not warrant serious consideration being given to a comparison between results obtained by different Buhler mill operators.

——BREAD IS THE STAFF OF LIFE——

Report of Chemists' Sanitation Committee

A report of the sanitation methods committee of the American Association of Cereal Chemists was presented at the annual meeting of the Association of Operative Millers by J. M. Doty, general chairman of the sanitation methods committee of AACC and director of the Doty Technical Laboratories, Kansas City.

Mr. Doty told the millers that during the past year the committee has spent much of its time to "correct some of the causes for variations in results" in making determinations in the insect fragment count in flour.

He said that considerable work had to be done to perfect the techniques and interpretation of results before the procedures became dependable.

During the past year the AACC sanitation methods committee has had three subcommittees working separately on special phases of analysis. Mr. Doty said that one committee has worked entirely on studying the comparative value of 50-gram and 113-gram samples. A second committee worked on identification of insect larva fragments and insect fragments and the third made a survey of the equipment being used and the procedures being followed.

Mr. Doty summarized the work of the committee and said that it was shown that the efficiency of separation was greater on the 50-gram samples than on the larger samples. The committee recommended that a 50-gram sample be used as the basis for making determinations.

The second subcommittee recommended that more information be given analysts regarding identification of larva fragments. The committee surveying the equipment recommended that some definite standards be adopted. Mr. Doty recommended that "hard and fast standardization" is necessary if agreement among operators is to be obtained.

He also told of the technician training program instituted by the Millers National Federation's technical committee in collaboration with the AACC and said that the results obtained in these short courses for technicians were very gratifying.

——BREAD IS THE STAFF OF LIFE——

SANITATION COMMITTEE APPOINTED BY AOM HEAD

MINNEAPOLIS—George B. Wagner, head of the department of economic biology, Pillsbury Mills, Inc., Minneapolis, has been named chairman of the mill sanitation committee of the Association of Operative Millers.

C. R. Veeck, president of the association and superintendent of the Eagle Roller Mill Co., New Ulm, Minn., in announcing the appointment of Mr. Wagner, explained that the sanitation committee is a new addition to the AOM. He said that it will serve to coordinate research work in flour mill sanitation and also as a means of supplying AOM members with information regarding sanitation.

Serving on the committee with Mr. Wagner are: Paul McSpadden, Commander-Larabee Milling Co., Minneapolis; Dr. H. E. Gray, Dominion Bureau of Entomology, Ottawa, Ont.; Howard Stedman, Rodney Milling Co., Kansas City; Eric Kitely, International Milling Co., Minneapolis, and Dr. R. T. Cotton, Bureau of Entomology and Plant Quarantine, U.S. Department of Agriculture, Manhattan, Kansas.

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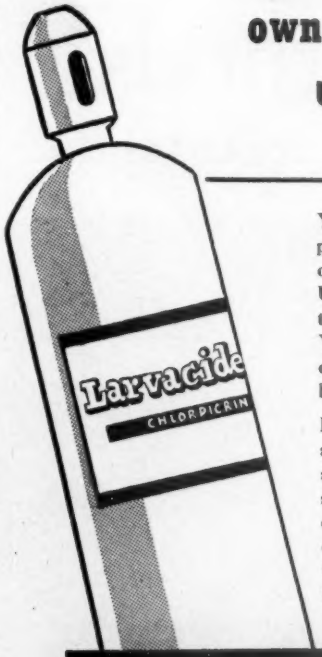

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Engineer Describes Use of Instruments in Control of Mills

Immediate and practical applications of standard industrial control instruments can be and are being made in flour mills. This important point was established by Jack Blackburn, Brown Instrument division, Minneapolis-Honeywell.

Mr. Blackburn started with a discussion of a problem close to the hearts of all millers, and that is the control of the moisture content of the wheat after temper. He stated that this problem is capable of solution if we can find some means of continuous moisture determination on the dry wheat coming to the tempering conveyor. The other problems regarding the control of the flow of wheat and water have already been solved and slides were shown illustrating typical applications in this type of control. Mr. Blackburn emphasized that instrumentation eliminates errors, produces a consistent product at the minimum cost and relieves the skill of the miller for other activities as well as providing him with an accurate and continuous record for cost accounting. The big question is why don't more millers use standard instruments in the control of the mill operation and Mr. Blackburn answered his own question by stating that one is a lack of knowledge of available instruments and the other is the instrument salesman's lack of knowledge of milling.

Mr. Blackburn went on with a series of slides showing the principal types of standard control and recording instruments and typical applications. For example, flow meters are available both for measuring liquid flow and dry material flow.

Liquid flow meters are based upon the pressure differential across an orifice through which the liquid flows and can be used to control water flow to tempering conveyors, steam flow, molasses flow, etc. Meters for the measurement of dry material flow can be constructed out of relatively simple components, using a screw or belt conveyor driven at a constant speed and mounted on a steel beam.

The instrumentation comes in linking the beam motion through a suitable transmitter to a recorder and controller. Pressure gauges, thermometers, potentiometers for measuring grain temperatures, barometers for use in the ash test, and a very interesting device for humidity measurement making use of the new lithium chloride cell was shown.

All of these control devices can be used first of all to measure, secondly to record, and third with suitable actuating mechanisms can be used to control the process within certain limits. At the present time the Minneapolis-Honeywell Co. is working with the milling school at Kansas State College in the application of pneumatic roll pressure control to existing roll stands. Mr. Blackburn closed his talk with a statement that instruments are what you make them. If you request a certain instrument and enough people request it, you will have that instrument, just as in elections, if you don't vote, don't complain.

—BREAD IS THE STAFF OF LIFE—

CONVENTION CAMPAIGN IS SUCCESSFUL

★

CHICAGO—Members of District 8, Association of Operative Millers, believe in starting publicity campaigns early. The 1952 convention of the AOM is scheduled to be held in Buffalo, and members of the Buffalo district had an attendance campaign in full swing at the 1951 meeting held recently in Chicago. Each of the District 8 members wore a large badge bearing the inscription, "I am from District 8," with the figure 8 occupying the center of the badge. The legend across the bottom of the badge was, "We welcome you to Buffalo in '52." It was reported that District 8 members were fined $1 for each time they appeared without their badges.

Mill School Heads Speak at Meeting of Technologists

The annual IIMT dinner was held in the West Room of the Sherman Hotel on the evening of May 15. Mr. Esli A. Marsh, St. Regis Paper Co., president, presided over the meeting, which was highlighted by a Hawaiian orchestra carrying out the Hawaiian theme planned for the affair.

The highlights of the evening were talks by Dr. J. A. Shellenberger, head of the Department of Milling Industry, Kansas State College, Manhattan, Kansas, and Prof. John M. McKenzie, staff member in charge of the milling engineering curriculum at the University of Minnesota.

Dr. Shellenberger brought a message of hope for an expanding cereal product demand due to the rapid growth of the population in this country in spite of slowly declining per capita consumption. Dr. Shellenberger stated that we have every rea-

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son to believe that the milling industry and the cereal processing industry faces an expanding market with plenty of opportunity for technological development.

He backed this up by pointing to the world food situation as compared to the rapid growth of population all over the world and a very definite limit to the arable land available for feeding this population. He expressed his thanks to the International Institute of Milling Technology for the $400 scholarship provided at Kansas State College and stated that it was everyone's duty as a citizen of the U.S. to promote the development of the educational institutions in this country so that they can become a means of elevating the cultural and technological standard of the country rather than following it.

Professor MacKenzie spoke briefly on the development of the milling engineering curriculum at the University of Minnesota and thanked the International Institute of Milling Technology for its contribution to the University of Minnesota scholarship fund. Prof. MacKenzie stated that this fund had enabled the University to assist some 13 students in their studies in milling engineering.

The problem of training the engineer in industry was discussed by Prof. MacKenzie with emphasis on the new cooperative work-study program recently instituted at the University of Minnesota. This program provides for two years of study at the university followed by three years of alternate quarters of work in industry and attendance at the school.

This program, already in operation in cooperation with two of the milling concerns located in Minneapolis, will be a means for better preparing the milling engineering graduate for service both to the industry and to himself.

At the close of the meeting the nominating committee reported on the new officers. David P. Swan, Sprout-Waldron Co., Chicago, was elected president and Herbert K. Swan, Allis-Chalmers Mfg. Co., Milwaukee, Wis., was elected vice president. Henry Watson, Alexander Bros. Co., Philadelphia, Pa., presented a resolution from the resolutions committee calling for a change in the name of the International Institute of Milling Technology. The new name proposed is the International Society of Milling Technology, and this resolution was stated as a motion, seconded and carried by unanimous vote.

Esli Marsh, chairman, announced the institution of an award of $100 each to a student from Kansas State College, Department of Milling Industry, and a student from the milling engineering curriculum at the University of Minnesota. This award is to be granted on the basis of a paper submitted on technical subjects related to milling.

In addition, other officers not mentioned in the first draft are as follows: George Smutny, Entoleter Division of the Safety Car Heating & Lighting Co., became second vice president, and Richard E. Miller, American Miller & Processor, and Russell B. Maas, president, Screw Conveyor Corp., were elected secretary and treasurer, respectively. Directors for the coming year will be J. H. Waldron, Sprout, Waldron & Co.; G. E. Hubler, Alexander Bros. Belting Co.; Dr. E. G. Bayfield, Standard Milling Co.

—BREAD IS THE STAFF OF LIFE—

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Industrial Relations Presents a Problem for Big Companies

C. H. Broaded, Fisher Flouring Mills Co., Seattle, discussed adjustment of personal relationships for greater productivity. He said the growth of business firms has resulted in separation of the workmen and lower level supervisor from the person in authority, complicating the job of maintaining good relationships between employee and employer.

This separation has created many problems because most of our employees are left without any adequate leadership, and the complexity of modern business is such that managerial skills must be possessed by every supervisor in an organization. In order to develop our supervisors so that they can do an adequate job of management, we have found how to teach them to become good planners, organizers, order issuers, controllers and coordinators. These are the functions of a manager and will apply regardless of the type of industry or the level of supervision.

In order to provide leadership for employees we have taught our supervisors how to act in such manner that they merit and maintain the respect of their subordinates. We have taught our supervisors to correct mistakes in such a manner that irritation or resentment is not caused and to handle grievances so that they are eliminated when they are small. We have taught our supervisors to develop their subordinate's initiative

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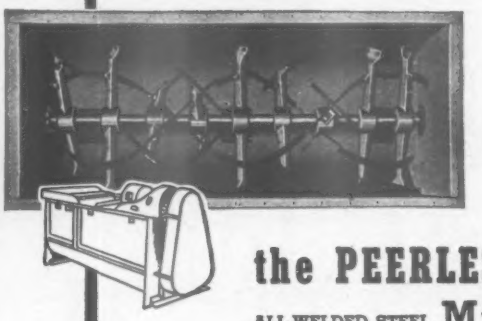

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Our rapid technological advance requires the acquisition of new skills by employees not only at the work level but in supervisory jobs, and it is the boss of the individual concerned who must do a teaching job in order to have his subordinate perform properly, so one of our supervisor's skills is that of being a competent instructor. Materials handling has become a science, and we are attempting to make the application of energy, whether it is mechanical or human, as efficient as possible by making travel distance as short as possible, by eliminating backtracking and cross travel, by pre-positioning tools and teaching workers to work in their most effective working area by means of pre-positioned tools and equipment. Supervisors who understand these principles and techniques are able to have subordinates produce more, actually with less effort and fatigue.

Because individual bargaining in the matter of wage rates is no longer possible, we have witnessed the rise of unionism. But supervisory workers are normally outside the jurisdiction of the union. Consequently we have developed job evaluation as a method of adequately and equitably paying those people in supervisory positions who are unable to bargain individually with their superiors.

This technique is being adopted by some of the more enlightened unions in order to eliminate inequities in the wage structure.

In an attempt to match more adequately individual skills with job-requirements, we have developed extensive testing programs, it was stated.

This field of research is in its infancy, but is already showing very good results when properly applied. In the field of psychology we are doing additional research and beginning to understand the methods which individuals use to cope with difficulties such as fighting and aggression versus friendship versus withdrawal tendencies, and can now do a good job in showing individuals how to react correctly in a given situation on the basis of some type of intelligent and logical thinking rather on the basis of emotional habit patterns.

In the field of sociology we are studying social systems, the levels of supervision and their hierarchies, the system of rewards and punishments, the open door policy and various aspects of group activity. These studies are giving us a better look and a more profound knowledge of the factors inherent in a modern complicated industrial enterprise.

The field of anthropology is also contributing as a tool to help us solve the problems inherent in modern business.

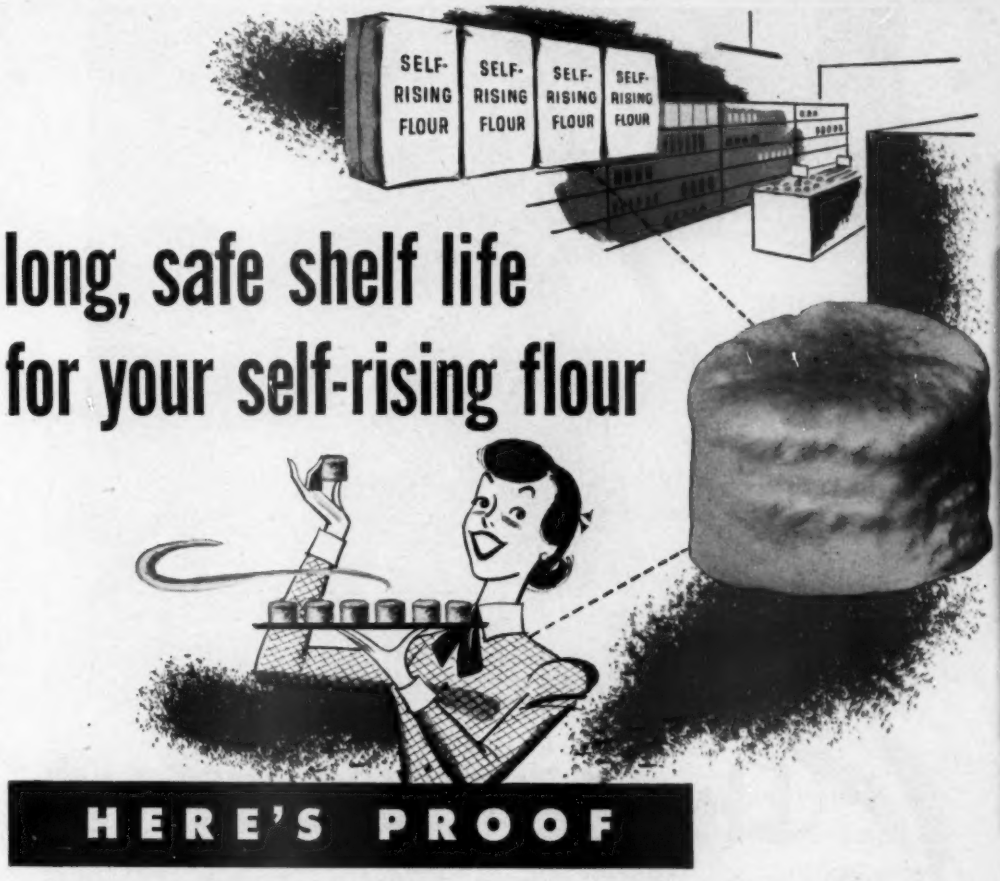
Additional research based on psychology, sociology, and anthropology is showing that normally we use but two methods of solving social conflict. The first is the big stick method, in which one antagonist really outdoes the other by a show of power or by the application of actual power. The other method is that of compromise, where the antagonists each agree to take a little less than they normally desired. Both of these methods have definitely shown that they do not solve conflict adequately. The third method that is being studied and developed as a result of studies in these three previously mentioned fields is that of integration. Integration is a process of exploring all the possible solutions to a conflict and arriving at one which satisfies both parties. By this means it is not necessary for one to get the better of the other through power tactics nor to compromise his desires.

In conclusion we are developing many new sciences as applied to our economic enterprises, and we are studying the tensions and frustrations that individuals acquire working under our modern mass production setups. There does not at this time seem to be any one individual package that can cure all our ills, but assuredly we have enough skill in using these new tools, and we certainly shall be able to solve the frustrations and tensions that exist among our working population.

Up to the present time we have devoted approximately 95% of our attention to the solution of mechanical problems and by this technique we have become the greatest producing nation in the world. But our rapid growth has put serious cracks in our social structure, and henceforth we are going to have to reverse this application and put most of our effort on solving human problems, for we know that the man behind the machine is in the final analysis the determining factor in how productive our economy may become and how well adjusted our people may be.

Need of Sanitation in Boxcars Shown in Series of Slides

The slides, prepared for and used by the joint millers and bakers committee, have already been presented to food and drug officials and to top executives of the country's leading railroads. They show graphically the difficulties in attempting to maintain sanitary boxcars where end linings permit the accumulation of stocks derived from all types of products. Investigation showed that these



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stocks were frequently heavily infested, as brought out by Mr. McSpadden's presentation of the analytical results of examinations made on these stocks.

Mr. McSpadden pointed out that rats and mice found in the boxcars and contamination resulting from the presence of rats and mice in boxcars are just as serious a cause of rejection of flour shipments as insect infestation. Present methods of spraying and coppering are inadequate to control infestation under the existing conditions. The recommended procedure is to sweep the car, blow it down with air, spray it with at least 100 milligrams of residual spray per square foot of floor and wall area at least 12 hours prior to papering and loading. This work, of course, should be done by the railroads in the yards and not at the mill. The problem has been to convince the railroads that this is necessary.

Steps are being taken, however, to correct this condition and one of the most interesting is a four-year test on the use of compressed Fiberglas lining in the ends of the boxcar underneath the usual wooden liner. Equipping the ends of the boxcars with this compressed Fiberglas liner costs about $23 for labor and material and if the car is sealed all around with this Fiberglas lining it costs approximately $150 a car. At the conclusion of four years of service on a test car no signs of infestation were found in the car. The procedure consists briefly af asphalting the metal surfaces, nailing the Fiberglas to the nailing strips and then nailing the end linings or side linings in place. Experiments with cars in which the end lining has been completely omitted have not been very successful due to excessive sack breakage. Some 4,000 cars have been put into service with hinged end linings which permit opening of the end lining prior to cleaning.

The reason for the railroads reluctance to take the necessary time to clean the cars for flour shipments were emphasized by figures presented by Mr. McSpadden showing that since 1920 the boxcars in service have declined from 1,062,000 to 704,746 cars in September of 1950. Under these conditions the boxcar manufacturers are being requested to devise ways and means of avoiding hidden pockets and places where stocks may accumulate so as to simplify the cleaning problem as much as possible.

——BREAD IS THE STAFF OF LIFE——

Demonstration of Mechanical Centrifuge for Dust Collection

High efficiency mechanical collection of dusts with control of uniformity of collection efficiency under widely varying conditions is now possible, according to W. R. Carter, R. J. S. Carter Co., Minneapolis.

In his paper entitled "Fundamentals and Demonstration of the New Carter Air Centrifuge Dust Separator," Mr. Carter put on a two ring demonstration with models of the mechanically driven centrifugal separator with the aid of two millers with blue serge suits. The high point of the presentation was when the two millers with blue serge suits stood one in front of each model while dust was fed into the inlet of the machine, and no visible dust deposited on the arms of the subject millers.

The operating principle of the machine is similar to that of the cream separator, in that discs rotating at high speed are used to centrifugally separate the dust from the air stream. Mr. Carter emphasized that there is nothing new about the idea as a search of the patents show that it is quite old. The professional application of the principle in commercial dust collector units, however, has never been achieved up to this time and the Carter collector has now been made and operated successfully both as a model and as a commercial sized unit. Colored slides and charts were used to describe the principles of operation which clearly presented the mechanics of the separator operation.

——BREAD IS THE STAFF OF LIFE——

Manufacturers Tell Millers About New Machines, Products

"What's New," a feature of last year's convention, was presented by George Tesarek, Quaker Oats Co., present chairman of the research committee. During this session presentations of recent developments were presented from the experience of the Research Committee.

Five speakers were programmed for the 1951 convention, starting off with Russel Kice, Kice Metal Products Co., Wichita, Kansas. Mr. Kice brought the story on the development and application of the Kice aspirator which is being applied on whole grain pre-break stock for the reduction of fragment count. In addition it is being used on purifier stocks to remove small lots of flour and bran from primary middlings. Additional applications have been found in the reclaiming of screenings and the recovery of germ.

Principal features claimed for the new aspirator are uniform suction across the width of the wheat stream and a uniform depth of wheat in the

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wheat stream. C. A. Gallaer, Buell Engineering Co., Inc., New York, made the presentation on high efficiency cyclones manufactured by his organization. Efficiencies equivalent to stocking collectors are claimed for the Buell unit, and Mr. Gallaer devoted the major portion of his talk to discussing the difference between fractional efficiency and over-all efficiency.

He emphasized that fractional efficiencies expressing the collector efficiency for each size range in the particle size distribution of the material to be collected should be studied in each case as the over-all efficiencies could be very misleading.

The principles of design of the Buell collector were discussed to explain why it achieved its efficiencies in excess of 99.9%.

A rapid, easy to read, consistent moisture determination method is available for use on dry, temperate or freshly wetted wheat and cereal products, according to R. R. Moore, Burrows Equipment Co., Evanston, Ill., who presented the story on the "Universal" moisture tester. Using a large cardboard model, Mr. Moore presented a brief nontechnical description of the operation of the unit. When determining moisture contents on first wetted wheat, Mr. Moore emphasized that it is necessary to grind the wheat before placing it in the cup and measuring the moisture content. The uniformity of results claimed are achieved because of the control of the sample's thickness within the cup by application of pressures up to 10 to 12 tons per square inch.

"Pneu-Vac" System Described

The story on the development and application of a low-pressure pneumatic conveying system developed in the U.S. by Sprout-Waldron & Co., Inc., Muncy, Pa., was presented by J. H. Waldron, who has been intimately concerned with this new field of activity for his organization. After a brief discussion of the early applications and some of the engineering data regarding air requirements and horsepower, Mr. Waldron went on to describe with the aid of slides several interesting installations in a wide range of industries. Mr. Waldron emphasized that power requirements had been considerably lower than originally anticipated in most cases and that in his estimation the adoption of pneumatic conveying for mill stocks was inevitable.

The What's New phase of the program closed with a brief presentation of slides on the dust sampling method developed at the University of Minnesota for the research committee.

——BREAD IS THE STAFF OF LIFE——

K-STATE MILLING SCHOOL GRADUATES HOLD DINNER

CHICAGO—Graduates, former students and friends of the Department of Milling Industry, Kansas State College, held an informal dinner in connection with the annual meeting of the Association of Operative Millers at Hotel Sherman, Chicago, May 16.

J. F. Lockwood, managing director of Henry Simon, Ltd., British milling machinery firm, was guest speaker at the dinner and in a short address paid his compliments to the facilities at Kansas State for instruction in research and milling technology. The facilities, he said, were the best in the world for that type of work.

Mr. Lockwood made the suggestion that perhaps some arrangement could be made for an interchange of students in milling between Europe and the U.S. He said that his company would be very happy to participate in some such plan, giving the milling students experience in the Henry Simon works.

Milling students in England and Europe, he said, should also have the opportunity of taking advantage of the research and educational facilities at the milling school at Manhattan and at the University of Minnesota.

Dr. J. A. Shellenberger, head of the department of milling industry, gave a summary of recent developments on the K-State campus and more particularly in the milling industry department.

Prof. E. P. Farrell, a member of the milling school staff, was master of ceremonies at the dinner. W. B. Briggs of the Quaker Oats Co. was chairman of the committee which arranged the dinner. Other members of the committee were Steven Loska, and Meade C. Harris, also of Chicago. Morris Buckman, General Mills, Inc., Buffalo, was elected chairman of the arrangements committee for the 1952 K-State reunion dinner which will be held in connection with the meeting of the operative millers in Buffalo.

There were approximately 50 persons in attendance at the dinner.

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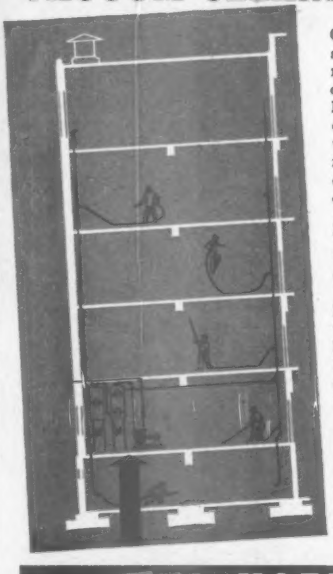

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Make Foremen a Part of Your Team

By Edmund Mottershead

WHAT do foremen and supervisors want to know about business? The fact that such a question should be raised at all has various serious implications. First: it implies that foremen for a great part or either ignorant or indifferent to business conditions and principles, or that they are kept in ignorance of such matters. Second: it implies that there is in existence a body of factual material and a group of principles and theories with which they should be thoroughly conversant. Third: it implies a direct responsibility of top management to see to it that foremen are given what they want and need to know about business, and more particularly, about the business in which they are engaged.

The basic problem facing the top management of any business is the same now as it has always been: to stay in business, protect the investors' capital, and make enough profit to justify the investment. To accomplish this, top management employs the services of a host of experts on law, taxation, labor relations, advertising, public relations, personnel management, personnel training, sales management, market analysis and many more, all of whom have but one thing to contribute to management's success — information. Top management realizes that in as complex an economy as ours, it is impossible to acquire individually most of the technical knowledge of business conditions necessary for the intelligent operation of the business.

Businessmen are still seriously perturbed over sources of supply for manufacturing operations; rising costs in every line coupled with uncertain labor conditions, new and untried union-management relations, and a vacillating foreign policy have added headaches to a situation which has only recently passed the critical stage in many lines. Consequently, management is eagerly searching for new information on these problems.

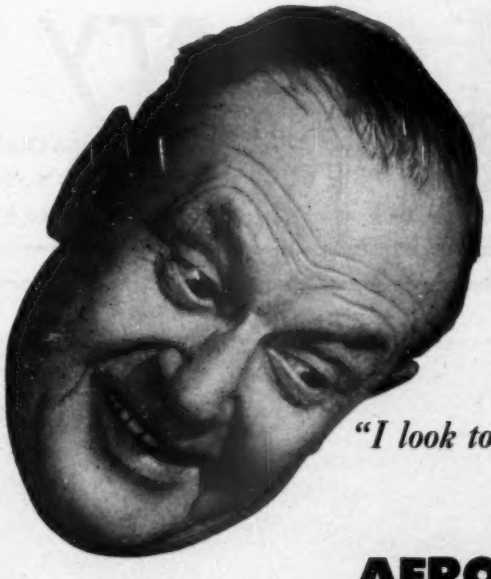
The simply expressed problem of "boom or bust" occupies considerable attention, and in some circles is giving rise to more high blood pressure than anything else. The fact that building costs are still rising coupled with the fact that nothing so far has been done to ease building craft union restrictions or the many restrictive building codes seems to indicate that our 141 million people will face an inflated real estate market for some time to come, possibly for another four or five years until residential building catches up with demand even at the present high prices.

We have already surpassed Henry Wallace's 60 million jobs. What was once a dream is now an underestimate. At the same time, agricultural-industrial states such as Illinois are showing an increase in industrial unemployment as manufacturers adjust their production programs. If any management can determine for itself the answer to the probable length of the present "boom," plans can be made which may make the difference between outstanding profits and business failure in the next two or three years. The largest wholesale jobber of general merchandise not long ago wrote off a matter of $7 million inventories as unsalable, fired the president, four vice presidents and 26 regional managers in an attempt to readjust to current conditions. Management is desperately looking for information, for facts, to make decisions which will insure the success of the operation.

It goes without saying that whether by design or accident, foremen and supervisors are to a large extent ignorant of these diverse factors which directly affect their company and in turn affect their own jobs. The American Management Assn. some time ago conducted a survey of more than 100 companies which had foreman-supervisor manuals. Over 336 individual topics were listed as being culled from the 100-odd manuals, under such broad topics as company history and organization, labor relations, hiring and placement, training, the foreman's job, general personnel administration, wage and salary administration, safety and health, accounting, production planning, maintenance and work simplification. Only six topics listed might possibly be construed as those which would give foremen some knowledge of business conditions and of the business where they were working: history of the company, labor legislation, labor supply sources, press and radio relations, cost control and the supervisor's labor and material budget!

Let us not labor the point. Aside from what they pick up themselves from newspapers, radio and magazines, foremen and supervisors are for the most part lacking in the essential business information necessary for an understanding of management policies and decisions.

Let's look at Joe Foreman! Who is he; what does he believe; what does he think about? If there is such



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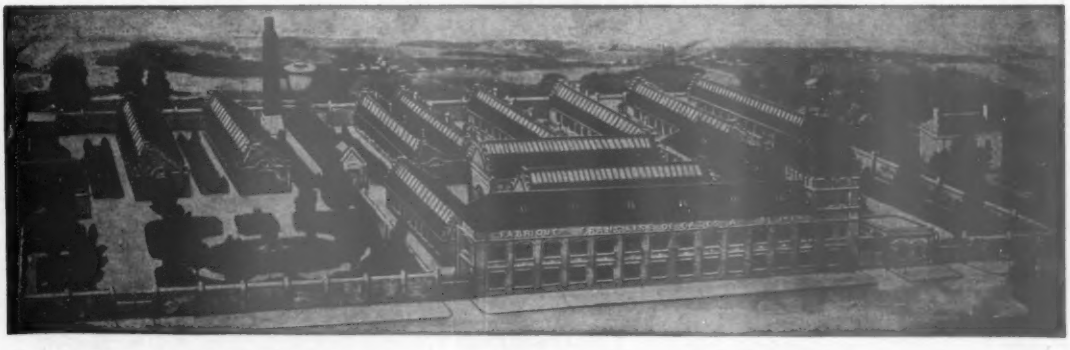

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a thing as an "average" man, we might say that Joe has a high-school education, or its equivalent, plus his years of direct job experience. He has been taught or has picked up some smattering of the thinking of "free enterprise," but finds that idea hard to swallow in the face of modern monopolistic competition. He has been taught the theory of supply and demand in a free market, but his daily experience proves that prices in our modern economy are relatively rigid.

In many instances he is working under the direct supervision of some young incompetent who happens to be the boss's nephew. In most cases he has come up from the ranks of where he was told that the key to prosperity is production of more and more goods (which it is), but where he saw plentiful production rewarded by mass lay-offs so that the much condemned "make-work" and "delay-work" thinking of labor in order to make the job last longer makes a certain rough sense to him. When he became supervisor, he lost the support and backing of a labor organization within which he had had some status as an individual and had felt some strength, while he has remained for top management a glorified flunky to be by-passed by staff departments and top executives (to say nothing of the union steward until recently) in their relations with his working force.

Give the Foremen Information

The problem of giving foremen the information they need about the business and about business conditions in general affecting their own situation is only a part of the larger problem of integrating the foremen and supervisors into management. Elsewhere we have considered some of the elements of a program to make them truly a part of management: pay them enough; give them authority commensurate with responsibilities; back them up in their decisions; establish supervisor and executive merit rating; consult them as to their opinions before making top-level decisions; bring them in on the "inside" of management thing. Giving them information can be carried out effectively only within the framework of some such general program.

What information should be made available to foremen and supervisors? Two types: 1. Information which interprets and analyzes current business conditions and which puts the individual company in the picture so as to explain broad management decisions in this area; 2. Information which analyzes and interprets conditions within the company which determine the way in which top management moves to meet outside business conditions . . . and which puts the individual foreman in the picture in such a way that he sees the relationship of conditions in his department with the whole.

High-Priced Knowledge

Specifically, foremen should be given a boiled-down version of most of the high-priced technical knowledge management obtains from news-letters, management engineers, business services, professional consultants of one kind or another, so that they understand general business conditions affecting the company. Second, they should get a clear break-down of internal company conditions, financial, inventories, personnel problems, personnel market conditions, sales programs, market research reports, and a host of similar information commonly restricted either to specific departments or to the top management level.

What will be accomplished by all this? By itself, the results are hard to predict. Possibly nothing. Perhaps some foremen might quite when they discover bad internal conditions; possibly others will demand salary increases; many should feel more a part of management and be in better position to carry out their tasks. However, in keeping with some of the other parts of a broad program to integrate foremen with management, the dissemination of such information insures the success of such a program from the start.

How should such information be disseminated? Some of it can be handled through supervisor conferences. Some should be provided through meetings with lecturers or guest speakers. Some of it can be presented in the employee magazine. Part of the job can be done with educational movies. One company is already making good progress along this line with a special Supervisor's News Letter, similar in content and general pattern to the various news-letters received by top management. The method must be selected to fit the information and the group involved.

However it is done, top management has an inescapable responsibility to provide this information to the supervisors and foremen. The most important thing to the foreman, just as to any worker, is his own future with the company, his family's security, and the satisfaction he receives in doing his work.

The Southwestern Laboratories
KANSAS CITY, MO.
GRAIN - FLOUR - FEED

INDUSTRY IS PROVING DAY "AC" DUST FILTERS!

87% OF OUR PRODUCTION IS FOR REORDERS FROM . . .

Licensed by H. J. Hersey, Jr.

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THIS SUCCESS STORY SPEAKS FOR ITSELF

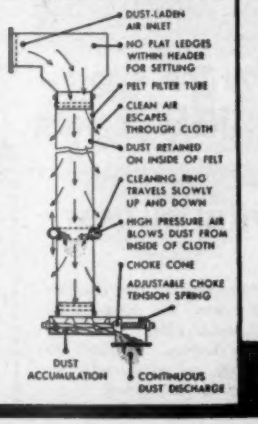
The soundness of the **Day** Type "AC" Dust Filter principle, effecting outstanding efficiency of operation with minimum maintenance, is verified by industry itself. 87% of our production of **Day** Type "AC" Dust Filters is channeled to meet the demands of users who are witnessing the results in their own plants—and reordering.

FEATURES OF THE DAY TYPE "AC" FILTER

- **CONTINUOUS-AUTOMATIC OPERATION** . . . the use of slow traveling, reverse jet cleaning rings gives automatic-continuous operation without shutdowns for cleaning.
- **CONSTANT AIR VOLUME** . . . the back pressure of **Day** Dust Filters rises slightly when first started, then levels off to assure constant air volume.
- **PARALLEL AIR FLOW** . . . in the **Day** Dust Filter, dust and air travel downward together.
- **HIGH AIR-TO-CLOTH RATIO** . . . 10, 15 or even 20 to 1 ratios maintained with uniform back pressures.
- **HIGH CLEANING EFFICIENCY** . . . with reverse jet cleaning, high grade filtering materials can be used because the action is gentle yet positive. Reverse jet rings move up and down, cleaning continuously.
- **NO DUST-CATCHING LEDGES** . . . **Day** TYPE "AC" FILTERS, with a pattern of square-to-round inlet fittings, have no flat surfaces where dust can accumulate and become contaminated.
- **OUTSTANDING ADAPTABILITY** . . . units can be furnished with multiples of 4 tubes; housed or unhoused (see illustration); can be applied for either pressure or vacuum.

SCHEMATIC OPERATING DESIGN

The reverse air jet mechanism provides uniform cleaning over the entire length of the tubes, and operates with a maximum cloth area loss of only 1¾% at any time. Air volumes remain constant and there are no cleaning shutdowns to cause high back pressures and sharp air volume variations.


DUST-LADEN AIR INLET
NO FLAT LEDGES WITHIN HEADER FOR SETTLING
FELT FILTER TUBE
CLEAN AIR ESCAPES THROUGH CLOTH
DUST RETAINED ON INSIDE OF FELT
CLEANING RING TRAVELS SLOWLY UP AND DOWN
HIGH PRESSURE AIR BLOWS DUST FROM INSIDE OF CLOTH
CHOKE CONE
ADJUSTABLE CHOKE TENSION SPRING
DUST ACCUMULATION
CONTINUOUS DUST DISCHARGE

Write-to-DAY for Bulletin 491

The DAY Company
SINCE 1881
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In Canada: P. O. Box 70E, Ft. William, Ontario.
Branch Plants in Fort Worth, Buffalo, Welland, Ont.

"Warfarin" Safe Effective Killer for Rats, Mice

The story of "Warfarin" was presented by Dr. W. W. Dykstra, assistant chief, Fish & Wildlife Service, U.S. Department of the Interior. Dr. Dykstra pointed out that while we are considerably more fortunate than the populations of the Philippines and southeast Asia, where rodents consume a sufficient proportion of the crop to create famine conditions, we nevertheless have a very serious rodent control problem.

While a number of rodenticides have been available for control purposes, they have all had undesirable characteristics, either from the standpoint of toxicity to human beings or because of their identification by the rodent in the bait. With the new rodenticide, "Warfarin," proper application will permit a reduction by at least three quarters of the present loss due to rodents. This is due to the fact that "Warfarin," unlike other rodenticides, is not identified with the bait and the cause of the rodent's discomfort and eventual death.

Dr. Dykstra was quick to emphasize that although "Warfarin" is a potent new weapon in the war against both rats and mice, it is not the universal cure-all as some advertisers have claimed.

Tests recently run at Denver have shown that while 25% of the mice died within the first day, at least 10% of the mice continued to eat the bait for over a month and still did not die. This means that a breeding stock of immune mice will remain which can eventually rebuild the rodent population. It was recommended that a water solution of 1080 be used to destroy the remaining 10% not killed by Warfarin. The use of any rodenticide for the control of mice is complicated by the fact that the house mouse may live its entire life span within 15 or 20 ft. of the same spot in the plant. This means that nests of mice lodged in food products cannot be destroyed with rodenticides without danger of contamination of the food product.

Fumigation is recommended under these conditions. Wherever "Warfarin" is used within food plants, Dr. Dykstra urged the use of closed break stations located along the walls of the building. "Warfarin" is available in a .5% mix which can be reduced in the final bait to 0.025% and still provide effective kill. A peculiar characteristic of "Warfarin" is that the rodent should have continuous access over a five-day period or longer in order to effect adequate control. The rodent dies slowly of internal bleeding and does not associate his discomfort or disease with the food which he is eating. One of the difficulties has been providing baits which will compete with food products that are available. Ordinarily water bait would be the satisfactory answer to this problem, but a soluble form of "Warfarin" is not yet available. "Warfarin" has one principal advantage in that it is not particularly toxic to human beings in ordinary dosages.

There are some instances of secondary poisoning in dogs and cats, particularly in cats where they have had a considerable supply of "Warfarin" poisoned rats and mice at their mercy. Dr. Dykstra closed by proposing perimeter control of the rodent population on the premises of the food plant.

CHURCH & DWIGHT CO., Inc.

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BICARBONATE *of* SODA

(FREE-FLOWING)

Especially prepared for the milling industry

BUSINESS FOUNDED IN 1846

DOUGLAS Helps Mill Operators STOP INFESTATION and HIGH FRAGMENT COUNT

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Here's Proof

Mr. Daniels Says—"Today with the penalties resulting from insect infestation, it's almost mandatory for every mill operator . . . to attack these profit robbers . . . Tetraspot and Special Mill Spray have aided us materially . . . We plan on continuing to use both products and can heartily recommend them to other millers."

Now . . . at Low Cost . . . You Too, Can

RID YOUR PLANT OF ALL INSECTS with Douglas

TETRASPOT and SPECIAL MILL SPRAY

Protect your profits! Stop insect infestation and high fragment count with these proved Douglas products:—Tetraspot, the new, fireproof spot fumigant that helps control insects in your flour and feed mills, bakery or food processing plant . . . and Douglas Special Mill Spray, the time-tested, safe contact insect killer. You'll find they're longer-lasting, harmless to foodstuffs, leave no taste, odor or stain. Try them in your plant!

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☐ Please send me booklet:
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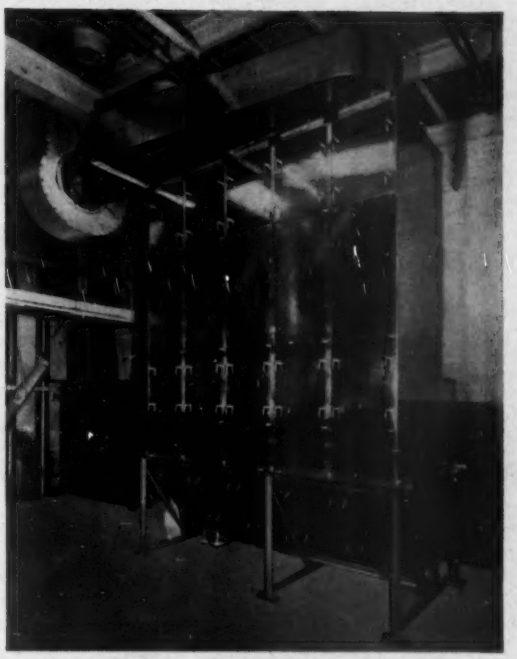
$ave $ out of DU$T

Your mill benefits from the most improved dust control equipment when you have the Simon Suction Filter Dust Collector.

Dust laden air that escapes to the atmosphere is both a nuisance and a waste of valuable stock. This mill problem is effectively solved with the Simon Suction Filter Dust Collector. Self-contained, all-metal, this unit needs no accessory equipment except a fan and connecting ducts. Dust is collected at practically 100% efficiency, permitting air to be blown out of the flour mill without costly loss of stock, or into the building without risk of dusty atmosphere.

ADDED ADVANTAGES: Cleaned air from collector can be returned to mill to save heat in winter, and blown outside in summer to control humidity • Stops the dust nuisance • Proven by years of experience throughout the world • Streamlined ALL METAL design with minimum ledges and dead spots • Minimum maintenance cost • Low power — 1-HP to operate 12-section unit • Operates under suction, eliminating dust leaks.



The Simon Suction Filter Dust Collector
U. S. Design and Manufacture by
ENTOLETER DIVISION

Write to us for complete information on "ENTOLETER" Centrifugal Machines and the Simon Suction Filter Dust Collector. We will be glad to make recommendations to meet sanitation and dust control problems encountered in mill operation. ENTOLETER DIVISION, The Safety Car Heating and Lighting Co., Inc., 1189 Dixwell Avenue, New Haven 4, Connecticut.

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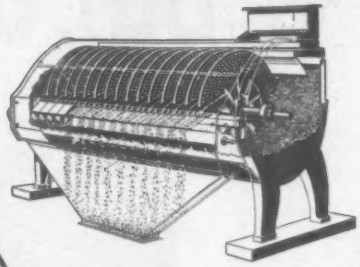
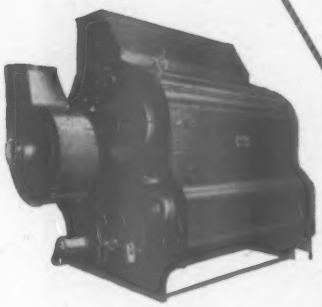
CONTINUOUS INSECT CONTROL SYSTEM

The *RIGHT* Cleaning Machines for *YOUR* Requirements!



Carter Disc-Oat Separator
Length Separation



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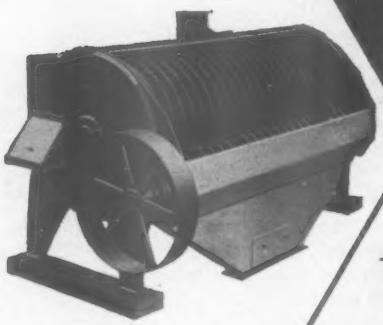
Carter Millerator
Refined Scalping, Screening and Aspirating

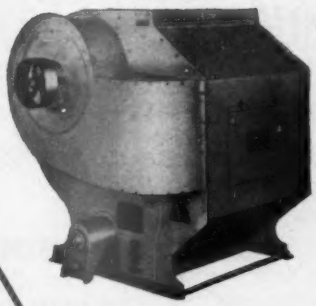
Balanced Cleaning

Hart-Carter grain cleaning machines provide the right type of separation in the right place — balanced cleaning. Thorough cleaning is necessary and profitable; over-cleaning is wasteful and expensive. Hart-Carter machines combine efficiency with economy of operation . . . capacity with compactness. In the extensive Hart-Carter line there are machines to fit your specific requirements. Write for complete information today.



Carter Disc-Seed Separator
Length Separation

Carter Precision Grader
Thickness Separation and Grading



Duo-Aspirator
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